Complete Summary

GUIDELINE TITLE

Procedure guideline for diuretic renography in children.

BIBLIOGRAPHIC SOURCE(S)

Society of Nuclear Medicine. Procedure guideline for diuretic renography in children, 2.0. Reston (VA): Society of Nuclear Medicine; 1999 Feb. 18 p. (Society of Nuclear Medicine procedure guidelines; no. 2.0).

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Ureteropelvic or ureterovesical obstruction

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Nuclear Medicine
Radiology

INTENDED USERS

Allied Health Personnel
Physicians

GUIDELINE OBJECTIVE(S)

To assist nuclear medicine practitioners in recommending, performing, interpreting, and reporting the results of diuretic renography in children

TARGET POPULATION

Children with ureteropelvic or ureterovesical obstruction

INTERVENTIONS AND PRACTICES CONSIDERED

Diuretic renography with technetium-99m diethylene triamine pentaacetic acid (Tc-99m DTPA), Tc-99m mercaptylacetyltriglycine (Tc-99m MAG3), or iodine-131 orthoiodohippurate (OIH, Hippuran) and furosemide (Lasix)

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Literature searches were performed. In addition, references known to experts and references from the nuclear medicine community were considered.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Drafts of the guideline were submitted to members of the Guideline Development subcommittee (methodologists) and the Task Force (subject experts). These reviewers indicated on a line-by-line basis any suggestions or recommendations for the revision of the guideline. The percentage of agreement for all reviewers was calculated for each revision and compiled by the Society of Nuclear Medicine (SNM) central office. It is expected that the percentage of agreement will increase with each revision.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When the Task Force and Guideline Development Subcommittee completed their edits, draft procedure guidelines were distributed to the Society of Nuclear Medicine (SNM) Sample Review Group for comment. (The SNM Sample Review Group is a cross-section of approximately 100 nuclear medicine practitioners representing every field of specialization).

The guideline was approved by the SNM Commission on Health Care Policy, the Board of Directors, and the House of Delegates.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Background Information and Definitions

Hydronephrosis (distension of the pelvicalyceal system) is one of the most common indications for radionuclide evaluation of the kidneys in pediatric patients. The etiology of the hydronephrosis can be an obstructed renal pelvis, an

obstructed ureter, vesicoureteral reflux, the bladder itself or the bladder outlet, infection or congenital in nature.

Contrast intravenous urography, ultrasonography and conventional radionuclide renography cannot reliably differentiate obstructive from nonobstructive causes of hydronephrosis and hydroureteronephrosis (distension of the pelvicalyceal system and ureter).

The pressure perfusion study (Whitaker test), which measures collecting system pressure under conditions of increased pelvic infusion, is relatively invasive.

The evaluation of function in the presence of obstruction does not give reliable indication of potential for recovery following surgical correction. High pressure in the collecting system results in reduction of renal blood flow and function.

The most common cause of unilateral obstruction is the presence of a ureteropelvic obstruction. Obstructions can also occur more distally at the ureterovesical junction. Bilateral hydronephrosis can be produced by posterior urethral valves, bilateral ureteropelvic obstructions or even a full bladder.

The purpose of diuretic renography is to differentiate a true obstruction from a dilated nonobstructed system (stasis) by serial imaging after intravenous administration of furosemide (Lasix).

Hydronephrosis detected in utero may resolve spontaneously and is related to physiologic change during early development. The diagnosis of obstruction often requires sequential scintigraphic examinations.

Common Indications

- Ureteropelvic or ureterovesical obstruction
- Prenatal ultrasound diagnosis of hydronephrosis
- Post-surgical evaluation of a previously obstructed system
- Distension of pelvicalyceal system as an etiology of back pain

Procedure

The detailed procedure recommendations in the guideline address the following areas: facility/personnel, patient preparation; information pertinent to performing the procedure (i.e., important data that the physician should have about the patient at the time the exam is performed and interpreted); precautions; information regarding the radiopharmaceutical (i.e., ranges of administered activity, organ receiving the largest radiation dose, effective dose), image acquisition; interventions; processing; interpretation/reporting; quality control, and sources of error.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Not stated

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The intent of the procedure guideline is to describe diuretic renography, in order to maximize the diagnostic information obtained in the study while minimizing the resources that are expended.

POTENTIAL HARMS

- Caution should be observed with postural changes because of possible diuresis-induced hypotension.
- Sudden abdominal or flank pain can arise during acute distension of the pelvicalyceal system in some patients.
- There is a small risk of catheter-induced trauma and infection.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The Society of Nuclear Medicine has written and approved guidelines to promote the cost-effective use of high quality nuclear medicine procedures. These generic recommendations cannot be applied to all patients in all practice settings. The guidelines should not be deemed inclusive of all proper procedures or exclusive of other procedures reasonably directed to obtaining the same results. The spectrum of patients seen in a specialized practice setting may be quite different than the spectrum of patients seen in a more general practice setting. The appropriateness of a procedure will depend in part on the prevalence of disease in the patient population. In addition, the resources available to care for patients may vary greatly from one medical facility to another. For these reasons, guidelines cannot be rigidly applied.

Advances in medicine occur at a rapid rate. The date of a guideline should always be considered in determining its current applicability.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Society of Nuclear Medicine. Procedure guideline for diuretic renography in children, 2.0. Reston (VA): Society of Nuclear Medicine; 1999 Feb. 18 p. (Society of Nuclear Medicine procedure guidelines; no. 2.0).

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Feb

GUIDELINE DEVELOPER(S)

Society of Nuclear Medicine, Inc - Medical Specialty Society

SOURCE(S) OF FUNDING

Society of Nuclear Medicine (SNM)

GUIDELINE COMMITTEE

Task Force

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

The Task Force consists of members from both academic and nonacademic practice settings.

Names of Task Force Members: Gerald Mandell, MD, Chair; Jeffrey Cooper, MD; Joe Leonard, MD; Massoud Majd, MD; John Miller, MD; Marguerite Parisi, MD; and George Sfakianakis, MD.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. This guideline updates the previous version (Procedure guideline for diuretic renography in children. Version 1.0. J Nucl Med 1997 Oct;38(10):1647-50).

An update is not in progress at this time.

The guideline developer states that the guideline is subject to a bi-annual update/revision cycle.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Society of Nuclear Medicine (SNM) Web site.

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Society of Nuclear Medicine. Procedure guideline for guideline development. Reston (VA): Society of Nuclear Medicine; 2001 Jun (version 3.0).

  Electronic copies: Available from the Society of Nuclear Medicine Web site.

- Society of Nuclear Medicine. Performance and responsibility guidelines for NMT. Reston (VA): Society of Nuclear Medicine; 2003.

  Electronic copies: Available from the Society of Nuclear Medicine Web site.

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

NGC STATUS

This summary was completed by ECRI on July 20, 1999. It was verified by the guideline developer as of August 5, 1999.

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Date Modified: 11/15/2004